

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-35 (canceled).

Claim 36 (previously presented): A liquid crystal display device comprising:
a liquid crystal panel including a first substrate, a second substrate, and a liquid crystal layer disposed between the first substrate and the second substrate;
a light guide plate disposed on the side of the second substrate that is not in contact with the liquid crystal layer;
a connection terminal portion disposed at an edge portion of the second substrate on the side thereof in contact with the liquid crystal layer;
an excitation source disposed at an edge portion of the second substrate on the side thereof that is not in contact with the liquid crystal layer at a position opposite the connection terminal portion; and
a light source disposed near at least one side of the light guide plate other than the side of the light guide plate that is closest to the excitation source so that light enters the light guide plate from the side at which the light source is disposed; wherein
the excitation source produces sound by causing the second substrate to flexurally vibrate according to an externally supplied sound signal.

Claim 37 (previously presented): A liquid crystal display device as described in claim 36, wherein the light source is disposed opposite to the excitation source with the light guide plate disposed therebetween.

Claim 38 (previously presented): A liquid crystal display device as described in claim 36, wherein the light source is disposed near a side of the light guide plate that is adjacent to the side closest to the excitation source.

Claim 39 (previously presented): A liquid crystal display device comprising:
a liquid crystal panel including a first substrate, a second substrate, and a liquid crystal layer disposed between the first substrate and the second substrate;
a light guide plate disposed on the side of the first substrate or the second substrate that is not in contact with the liquid crystal layer;
a light source disposed near a predetermined side of the light guide plate so that light enters the light guide plate from said predetermined side; and
an excitation source disposed at an edge portion of the first or second substrate near a side of the light guide plate other than said predetermined side; wherein
the excitation source produces sound by causing the first or second substrate to flexurally vibrate according to an externally supplied sound signal.

Claim 40 (previously presented): A liquid crystal display device as described in claim 39, wherein the light source is disposed opposite to the excitation source with the light guide plate disposed therebetween.

Claim 41 (previously presented): A liquid crystal display device as described in claim 39, wherein the light source is disposed near a side of the light guide plate that is adjacent to the side closest to the excitation source.

Claim 42 (previously presented): A liquid crystal display device as described in claim 36, further comprising a frame arranged to house the liquid crystal panel and light guide plate, wherein the excitation source is disposed in contact with the frame or bonded to the frame, and causes the frame to flexurally vibrate according to the sound signal.

Claim 43 (previously presented): A liquid crystal display device as described in claim 39, further comprising a frame arranged to house the liquid crystal panel and light guide plate, wherein the excitation source is disposed in contact with the frame or bonded to the frame, and causes the frame to flexurally vibrate according to the sound signal.

Claim 44 (previously presented): A liquid crystal display device as described in claim 36, wherein the second substrate comprises a glass plate of which one side is in contact with the liquid crystal layer and a sheet of optical material disposed to cover a predetermined effective display area on the other side of the glass plate, and the excitation source is disposed in contact with the glass plate at an edge portion thereof in an area outside the effective display area on said other side of the glass plate, and directly causes the glass plate to flexurally vibrate according to said sound signal.

Claim 45 (previously presented): A liquid crystal display device as described in claim 39, wherein the first or second substrate comprises a glass plate of which one side is in contact with the liquid crystal layer and a sheet of optical material disposed to cover a predetermined effective display area on the other side of the glass plate, and the excitation source is disposed in contact with the glass plate at an edge portion thereof in an area outside the effective display area on said other side of the glass plate, and directly causes the glass plate to flexurally vibrate according to said sound signal.

Claim 46 (previously presented): A liquid crystal display device as described in claim 36, wherein the excitation source is disposed at the edge portion of the second substrate on the side thereof not in contact with the liquid crystal layer at a position corresponding to a middle portion of the connection terminal portion.

Claim 47 (previously presented): A liquid crystal display device as described in claim 46, further comprising a frame arranged to house the liquid crystal panel and light guide plate, and a chassis fit to an inside surface on a back side of the frame arranged to support the liquid crystal panel, wherein the liquid crystal panel is housed in the frame so that the first substrate is positioned on a front side and the second substrate is positioned on the back side, and the chassis has a thick-walled portion formed in corner areas at both end portions of the edge portion on the side of the second substrate not in contact with the liquid crystal layer.

Claim 48 (previously presented): A liquid crystal display device as described in claim 36, further comprising at least one other excitation source in addition to said excitation source, wherein said other excitation source causes the first or second substrate to flexurally vibrate according to an externally supplied sound signal.

Claim 49 (previously presented): A liquid crystal display device as described in claim 39, further comprising at least one other excitation source in addition to said excitation source, and wherein said other excitation source causes the first or second substrate to flexurally vibrate according to an externally supplied sound signal.

Claim 50 (previously presented): A liquid crystal display device as described in claim 36, further comprising a pickup unit arranged to convert vibrations of the second substrate to electric signals when external sound waves cause the second substrate to vibrate, and wherein said pickup unit is disposed near said excitation source and together with said excitation source.

Claim 51 (previously presented): A liquid crystal display device as described in claim 39, further comprising a pickup unit arranged to convert vibrations of the first or second substrate to electric signals when external sound waves cause the first or second substrate to vibrate, and

wherein said pickup unit is disposed near said excitation source and together with said excitation source.

Claim 52 (previously presented): An electronic device having a liquid crystal display device as described in claim 48, further comprising a signal processor arranged to change a sound output position in the first or second substrate by controlling the phase and amplitude of sound signals to be input to the plurality of excitation sources including said other excitation source.

Claim 53 (previously presented): An electronic device having a liquid crystal display device as described in claim 48, further comprising a data processor arranged to receive combined data containing image data representing an image to be displayed on the liquid crystal panel and position data denoting a sound output position in the image and separate and output the image data and position data, and a signal processor arranged to control the phase and amplitude of sound signals to be input to the plurality of excitation sources including said other excitation source based on the position data output from the data processor so that sound is output from a position in the first or second substrate corresponding to the sound output position in the image.

Claim 54 (previously presented): An electronic device comprising a liquid crystal display device as described in claim 36.

Claim 55 (previously presented): An electronic device comprising a liquid crystal display device as described in claim 39.

Claim 56 (previously presented): A liquid crystal display device as described in claim 36, further comprising a frame arranged to house the liquid crystal panel and light guide plate, and a structural panel disposed between the frame and the liquid crystal panel or the light guide

plate so that one side of the structural panel is in contact with the inside surface of the frame, wherein the excitation source is disposed in contact with, or bonded to, the other side of the structural panel and causes the frame to flexurally vibrate according to the sound signal simultaneously with the liquid crystal panel by way of the intervening structural panel.

Claim 57 (previously presented): A liquid crystal display device as described in claim 39, further comprising a frame arranged to house the liquid crystal panel and light guide plate, and a structural panel disposed between the frame and the liquid crystal panel or the light guide plate so that one side of the structural panel is in contact with the inside surface of the frame, wherein the excitation source is disposed in contact with, or bonded to, the other side of the structural panel and causes the frame to flexurally vibrate according to the sound signal simultaneously with the liquid crystal panel by way of the intervening structural panel.

Claim 58 (previously presented): A liquid crystal display device as described in claim 56, wherein the structural panel is located on a display surface side of the liquid crystal panel and comprises a sensor arranged to function as an operating unit.

Claim 59 (previously presented): A liquid crystal display device as described in claim 56, wherein the structural panel is located on a display surface side of the liquid crystal panel and comprises a complementary display.

Claim 60 (previously presented): A liquid crystal display device as described in claim 58, wherein the structural panel has a display arranged to indicate functions executed by predetermined operations, and the excitation source receives a signal denoting a vibration pattern corresponding to the predetermined operation from a predetermined signal generator disposed externally or internally to the liquid crystal display device, and causes the structural panel to flexurally vibrate in the vibration pattern corresponding to the predetermined operation based on said signal.

Claim 61 (previously presented): A liquid crystal display device as described in claim 59, wherein the structural panel has a display arranged to indicate functions executed by predetermined operations, and the excitation source receives a signal denoting a vibration pattern corresponding to the predetermined operation from a predetermined signal generator disposed externally or internally to the liquid crystal display device, and causes the structural panel to flexurally vibrate in the vibration pattern corresponding to the predetermined operation based on said signal.

Claim 62 (previously presented): An electronic device comprising a liquid crystal display device as described in claim 56.

Claim 63 (previously presented): A liquid crystal display device comprising:

- a liquid crystal panel including a first substrate, a second substrate, and a liquid crystal layer disposed between the first substrate and the second substrate;
- a light guide plate disposed on the side of the second substrate that is not in contact with the liquid crystal layer;
- a frame arranged to house the liquid crystal panel and light guide plate;
- a connection terminal portion disposed at an edge portion on the side of the second substrate in contact with the liquid crystal layer;
- an excitation source disposed and bonded to an inside surface of the frame at a position facing an edge portion of the second substrate on the surface thereof not in contact with the liquid crystal layer at a position on the opposite side as the connection terminal portion so that vibration is not transmitted directly to said opposite-side edge portion; and
- a light source held in the frame and disposed near at least one side of the light guide plate other than the side of the light guide plate closest to the excitation source so that light enters the light guide plate from the at least one side to which the light source is disposed;

wherein

the excitation source produces sound by causing the frame to flexurally vibrate according to an externally supplied sound signal.

Claim 64 (previously presented): A liquid crystal display device as described in claim 63, wherein the excitation source is disposed with a space between the excitation source and the second substrate to avoid contact with the second substrate at an expected vibration amplitude of the excitation source.

Claim 65 (previously presented): A liquid crystal display device as described in claim 63, further comprising a buffer material between the excitation source and the second substrate.

Claim 66 (previously presented): A liquid crystal display device as described in claim 63, further comprising a buffer material between the liquid crystal panel and the frame.

Claim 67 (previously presented): A liquid crystal display device as described in claim 63, further comprising a buffer material between the liquid crystal panel and the light guide plate.

Claim 68 (previously presented): A liquid crystal display device as described in claim 64, further comprising a buffer material between the liquid crystal panel and the light guide plate.

Claim 69 (previously presented): A liquid crystal display device as described in claim 65, further comprising a buffer material between the liquid crystal panel and the light guide plate.

Claim 70 (previously presented): A liquid crystal display device as described in claim 66, further comprising a buffer material between the liquid crystal panel and the light guide plate.

Claim 71 (previously presented): A liquid crystal display device as described in claim 63, further comprising a buffer material between the light guide plate and the frame.

Claim 72 (previously presented): A liquid crystal display device as described in claim 64, further comprising a buffer material between the light guide plate and the frame.

Claim 73 (previously presented): A liquid crystal display device as described in claim 65, further comprising a buffer material between the light guide plate and the frame.

Claim 74 (previously presented): A liquid crystal display device as described in claim 66, further comprising a buffer material between the light guide plate and the frame.

Claim 75 (previously presented): A liquid crystal display device as described in claim 63, wherein the light source is disposed opposite the excitation source with the light guide plate therebetween.

Claim 76 (previously presented): A liquid crystal display device as described in claim 63, wherein the light source is disposed near a side of the light guide plate that is adjacent to the side closest to the excitation source.

Claim 77 (previously presented): A liquid crystal display device as described in claim 63, wherein the second substrate comprises a glass plate of which one side is in contact with the liquid crystal layer and a sheet of optical material disposed to cover a predetermined effective display area on the other side of the glass plate, and the excitation source is disposed in contact with the frame at an edge portion on said other side of the glass plate in an area outside the effective display area, and causes the frame to flexurally vibrate according to said sound signal.

Claim 78 (previously presented): A liquid crystal display device as described in claim 63, wherein the excitation source is disposed at an edge portion of the second substrate on the

side thereof not in contact with the liquid crystal layer at a position corresponding to a middle portion of the connection terminal portion.

Claim 79 (previously presented): A liquid crystal display device as described in claim 78, further comprising a chassis fit to an inside surface on a back side of the frame arranged to support the liquid crystal panel, wherein the liquid crystal panel is housed in the frame so that the first substrate is positioned on a front side and the second substrate is positioned on the back side, and the chassis has a thick-walled portion formed in corner areas at both end portions of the edge portion on the side of the second substrate not in contact with the liquid crystal layer.

Claim 80 (previously presented): A liquid crystal display device as described in claim 79, further comprising a buffer material between the liquid crystal panel and the chassis.

Claim 81 (previously presented): A liquid crystal display device as described in claim 79, further comprising a buffer material between the chassis and the frame.

Claim 82 (previously presented): A liquid crystal display device as described in claim 63, further comprising at least one other excitation source in addition to said excitation source, wherein said other excitation source causes the frame to flexurally vibrate according to an externally supplied sound signal.

Claim 83 (previously presented): An electronic device comprising a liquid crystal display device as described in claim 63.